

$^{237}\text{Np}(\gamma, X), (e, X), (\mu, X)$

<u>Type</u>	<u>Author</u>	<u>History Citation</u>	<u>Literature Cutoff Date</u>
Full Evaluation	M. S. Basunia	NDS 107, 3323 (2006)	15-Mar-2006

$^{237}\text{Np}(\gamma, \gamma')$:

$E\gamma=122$ keV and 136 keV from a ^{57}Co source; the probability for the excitation of 102.95 -keV nuclear level was determined from the intensities of the 59.54γ and the K x ray to be 2.1×10^{-4} 6 per K hole ([1980Sa15](#)).

See [1991Lj01](#), [1992Tk01](#), [1993Ho20](#) for discussions on “nuclear excitation by electron transition” process, and for calculations of probabilities for such processes.

$^{237}\text{Np}(\gamma, F)$:

$E\gamma=6.73$ - 9.72 MeV; photofission branching ratio, fission-neutron competition, and fissility relative to ^{238}U ([1992Ge01](#)).

$E\gamma$ 1 to 11.5 MeV; from measured cross sections, fissility was deduced in [1986Al04](#).

$E\gamma=5$ - 18 MeV; (γ, F) , (γ, n) , $(\gamma, 2n)$ cross sections were measured, and from the measured photonuclear cross sections, giant dipole resonance parameters, deformation parameters, and the fission/neutron probabilities were deduced in [1986De38](#).

$^{237}\text{Np}(e, F)$: $E(e)=6$ - 60 MeV; the analysis of the electrofission cross sections by using the virtual photon formalism and the (γ, F) cross sections, [1988Ar02](#) deduced the presence of substantial amount of E2 and M1 strengths in the populated giant resonances near the fission barrier.

$^{237}\text{Np}(\mu^-, F)$:

The mean life time of the muon bound to $1s$ orbit was measured as 72.0 ns 20 ([1975Al17](#)), 73.5 ns 14 ([1978Wi07](#)), 71.3 ns 9 ([1980Wi06](#)), 69.8 ns 2 ([1988Da17](#)), 68.8 ns 2 ([1990Ha03](#)). See these references also for experimentally deduced muonic-capture rates.

See [1991Ch35](#) for calculations of muon capture rates and for discussion on neutron distributions role.

$^{236}\text{U}(p, F)$:

$E(p)=9$ - 16 MeV. The fission-barrier parameters were deduced in [1993Oh03](#) from the excitation function and the mass yield.